

# Highlights and Changes in NHTSA's Real-World Data Collection for Rollover Crashes

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# Outline

- **Overview of NASS data collection**
- **Rollover data and changes for 2006**
- **SCI focus**
- **Sample rollover case**

# NASS – CDS

National Automotive Sampling System - Crashworthiness Data System

- **Statistically based**
- **Not biased for rollover cases**
- **Good level of detail**
- **Valuable for making national projections**

# SCI

## Special Crash Investigations

- **Not statistically based**
- **Targets specific crashes**
- **Excellent level of detail**
- **Valuable for understanding specific vehicle/equipment behavior**

# NMVCCS

## National Motor Vehicle Crash Causation Survey

- **Statistically based**
- **No specific rollover focus**
- **On-scene and focused on pre-crash**
- **Valuable to understand factors contributing to crash/rollover**

# New Rollover Variables for 2006

- **Pre-Rollover maneuver:** The last controlled maneuver prior to the initiation of the rollover.
- **Interrupted Roll :** Yes/No if a roll sequence was interrupted by an object.
- **Estimated distance from trip point to final rest position :** The purpose of this variable is to determine the estimated distance from tripping point to the final rest position of the vehicle that rolled over.
- **Vertical and Lateral Maximum crush on the roof.** The crush is measured in Green House only

# Example of New Rollover Data

- **Pre-rollover maneuver**
  - The last controlled maneuver, relative to the roadway, prior to the initiation of the rollover.
    - **Attributes:**
      - Departing roadway (to paved surface) or (to unpaved surface)
      - Returning to roadway (from paved surface) or (from unpaved surface)
      - On roadway or Off roadway maneuver

# Example Rollover Data

- **Attempted avoidance maneuvers**
  - **Movements/actions initiated by subject driver within critical crash envelope in response to a Critical precrash event.**
    - **After driver realizes impending danger**
    - **Documents response to impending danger**

# Example Rollover Data

- **Location of rollover initiation**
  - **Select the attribute which best describes the vehicle's location, relative to the roadway, at rollover initiation**

## Attributes:

- **On roadway**
- **On shoulder -paved**
- **On shoulder - unpaved**
- **On roadside or divided trafficway median**
- **Rollover - end-over-end**

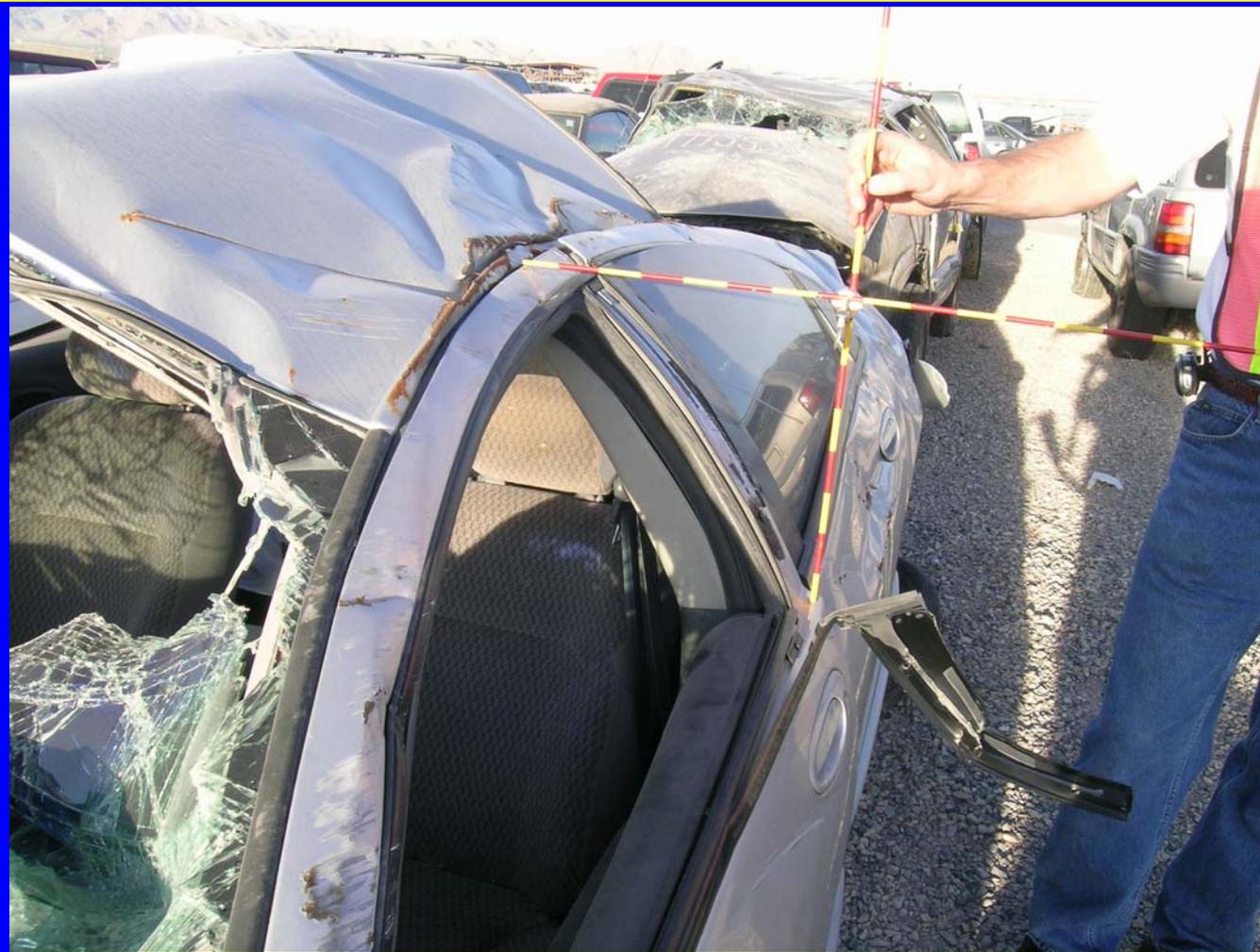
# Example Rollover Data

- **Location on vehicle where initial tripping force is applied. Identify the specific point on the vehicle where the tripping force was applied.**

## **Attributes:**

- **Wheels**
- **Tires**
- **Side plane**
- **End plane**
- **Undercarriage**
- **Other location on vehicle (specify)**
- **Non-contact rollover forces (specify)**
- **Rollover - end-over-end**

# MEASURE MAX CRUSH



Vertical  
and  
Lateral

# MEASURE MAX CRUSH



# PILLAR AREAS



A-pillar Area

# PILLAR AREAS



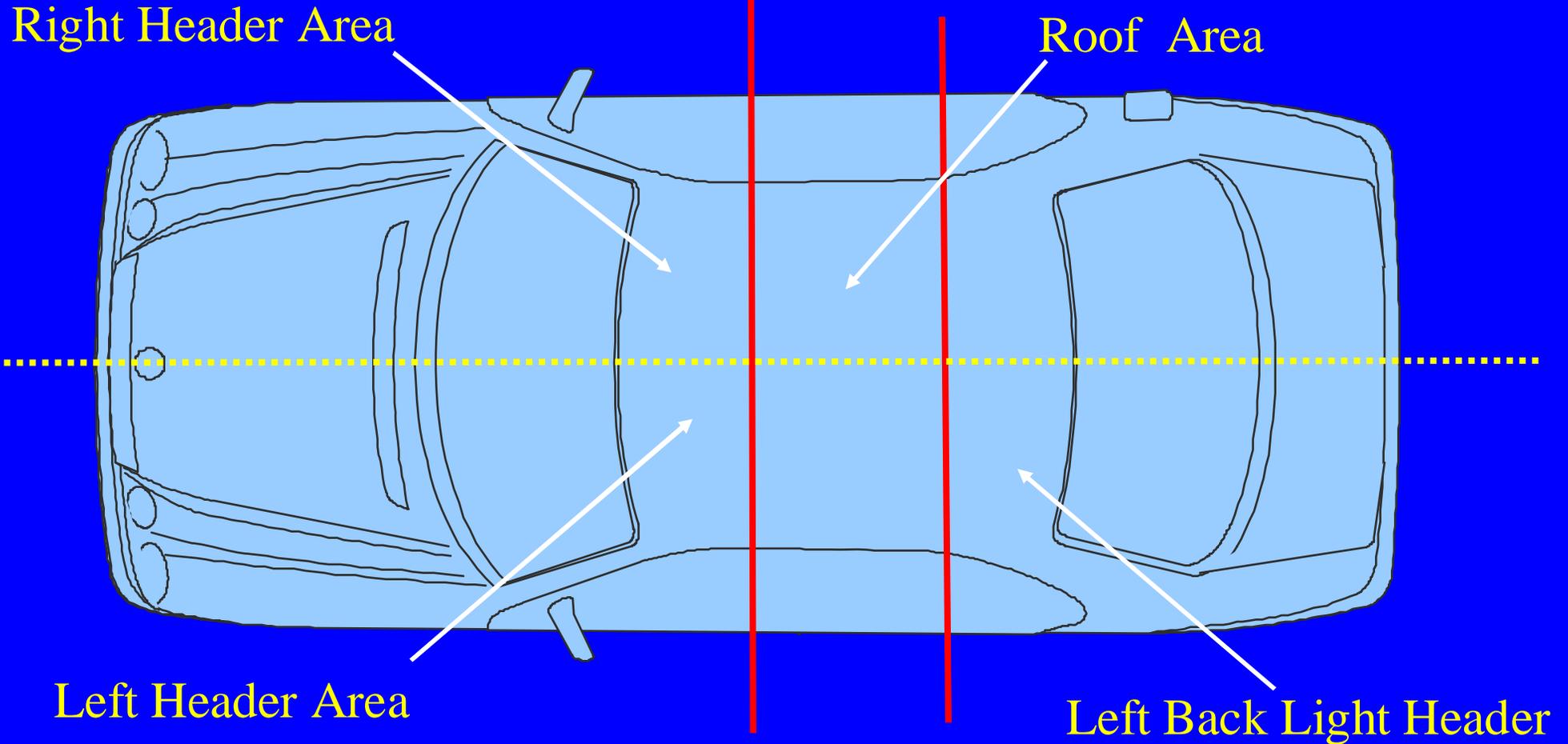
B-pillar Area

# PILLAR AREAS



C-pillar Area

# TOP PLANE AREAS



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## Focus Related to Rollover

- **Evaluate potential for ejection for vehicles *with* side curtains**
- **Gather all possible EDR and SDM downloads when rollover occurs**
- **Target vehicles with advanced passive and active safety technologies.**

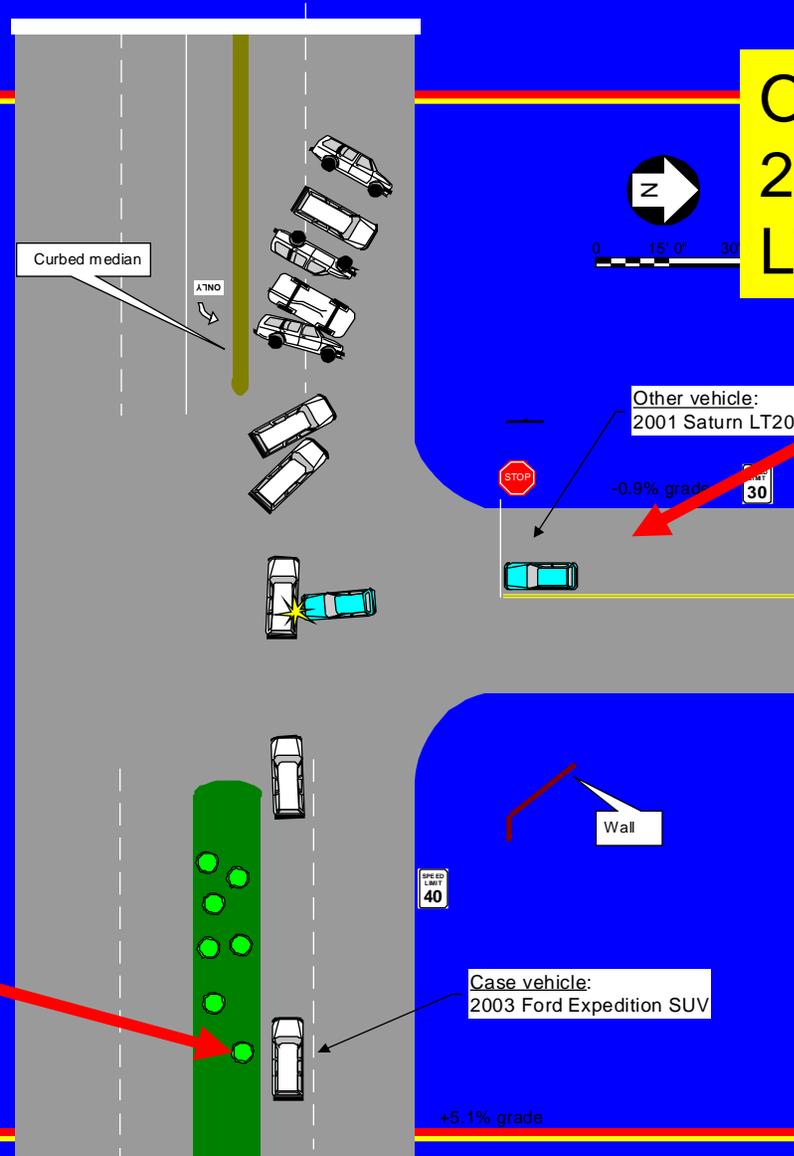
## Focus Related to Rollover (cont'd.)

- **Electronic Stability Control**
- **Roll sensing**
- **Rollover curtain protection**
- **EDR downloads**
- **Crashworthiness**

# Rollover Crash Example

Case Vehicle:  
2003 Ford Expedition

Other vehicle:  
2001 Saturn  
LT200



# 2003 Ford Expedition Collision Sequence

## Pre Impact:

- CV westbound at intersection at 40 mph
- Struck by a southbound vehicle on right side
- CV driver steered left and then corrected to right

## Crash Events:

- CV struck on right rear area and initiated a CW yaw
- Yawed 90 degrees to right
- Rolled left 5 quarter turns
- Came to rest on driver's side

# Overview of Occupants

- **Driver: restrained 47-year-old male**
- **Rear left occupant: restrained 10-year-old male**
- **Rear middle occupant: restrained 8-year-old male**

# Overview of Crash Scene



# Vehicle Exterior



# Right Outside View of Curtain



# Left Outside View of Curtain



# Injuries

None

# Questions

???

